

This lesson is part of a larger, comprehensive school garden guide called **Minnesota School Gardens: A Guide to Gardening and Plant Science** developed by Minnesota Agriculture in the Classroom in 2013. The entire guide is available at www.mda.state.mn.us/maitc.



Grade

High School

Materials/Preparation

- ☐ Teacher Material A – Where Does Food Safety Happen? – one per teacher
- ☐ Handout A – Food Safety Handbook – one per student
- ☐ Handout B – Check Your Steps – one per student
- ☐ Assessment A – Food Safety – one per student
- ☐ Paper and materials for creating safety handbooks
- ☐ Computers with Internet access
- ☐ Writing utensils

Fun Fact

For good growth rhubarb requires moist, cool summers and winters severe enough to freeze the ground to a depth of several inches.



Food Safety

Minnesota K-12 Academic Standards

Health

9.2.3

The student will analyze how information from the community influences health.

Summary/Overview

Students learn how food safety is regulated. They do research to find information needed to create a food safety handbook for the school garden and to learn the four simple steps to ensure food safety.

Garden Connection

Proper hand washing, produce handling procedures, and clean food containers all contribute to a safe harvest of garden produce.

Background Information

According to www.foodsafety.gov, each year one out of six people get sick from food poisoning. Food poisoning is any sickness resulting from food contamination. The risk for contaminated food is greatly reduced when safety procedures are followed. The government has implemented numerous safety procedures and protocols making the United States food supply one of the safest in the world.

The Food and Drug Administration (FDA) is responsible for protecting the public health by assuring that foods (except for meat from livestock, poultry, and some egg products, which are regulated by the U.S. Department of Agriculture) are safe, wholesome, sanitary, and properly labeled. (As listed on www.fda.gov.)

The United States Department of Agriculture (USDA) has an agency called Food Safety and Inspection Service (FSIS). FSIS enhances public health and well being by protecting the public from foodborne illness and ensuring that the nation's meat, poultry, and egg products are safe, wholesome, and correctly packaged. (As listed on www.usda.gov.)



Objectives

- Explain where food safety occurs and who is responsible.
- Describe the importance of a food safety plan for school gardens.
- Name the four simple steps to food safety once food enters the home.

Procedure

Interest Approach

Ask students to explain food safety and name those who help ensure our food supply is safe. Food safety refers to the proper production, handling, preparation, and storage of food to prevent foodborne illness. Two government agencies that assist in ensuring a safe food supply are the Food and Drug Administration (FDA) and the United States Department of Agriculture (USDA). Food safety is the joint responsibility of producers, transporters, processors, sellers, consumers, and anyone associated with handling food.

Summary of Content and Teaching Strategies

Safe food does not just show up on our tables at home and in the school cafeteria. Many people play a role in providing us with safe food. Discuss the information on Teacher Material A.

Ask students why it is important for them as producers of a garden to consider food safety. Producers, transporters, and sellers of food develop procedures and protocol to ensure that food is kept safe. When new employees are hired, they are trained using a handbook. Students will research information related to safely harvesting garden produce. They then develop a food safety handbook for the school garden. Provide students with copies of Handout A and access to computers with Internet. You may wish to print off copies of the Chapter 5 Teacher Information for students to reference while creating their handbooks.

If possible, complete the next activity after the first fruits and vegetables have been harvested from the garden. Tell students they cannot eat any items until they can prove they understand the four simple steps to food safety once food enters the home (clean, separate, cook, and chill). Provide students with copies of Handout B and instruct them to use www.foodsafety.gov to fill in the chart.

Review/Summary

Ask students to share the two most important food safety items related to the school garden they learned with the class.

Modifications/Extensions

Instruct students to research the role of the FDA and/or USDA in the regulation of food quality. Each student selects a specific topic. For example: regulations governing processing plants, grocery stores, restaurants, and consumers. Next students determine how these agencies influence their health. Have them create posters or write reports to share their findings.

Take a closer look at food safety concerns related to using manure in the garden. Start by reading the article *If you use manure in your garden, take precautions* by Carol Savonen online at <http://extension.oregonstate.edu/gardening/if-you-use-manure-your-garden-take-precautions>. Discuss the following with students: disease-causing microorganisms found in manure, treatment of manure prior to application, animal manure to avoid, and four steps that may be taken to prevent contamination and disease by manure.



Sources/Credits

This lesson was developed for the *Minnesota Garden Guide*.

Where Does Food Safety Happen?

The Farm/Garden

Crops: Fruit, grain, and vegetable crops are treated with fertilizers and pesticides that do not harm the food's safety for human consumption. Farmers must check for quality of crops throughout the growing season and before selling, and apply chemicals to crops at times when the integrity of the food is not damaged.

All garden produce must be washed before it's eaten. The microbes found in compost, manure, and soil can cause severe illnesses in humans. Manure, irrigation water, chemicals, human handling, and unsanitary harvesting equipment can all contaminate produce.

Livestock: Farmers must inspect livestock for disease and sickness. Responsible farmers work to create living conditions that keep their livestock healthy. Only healthy, disease-free animals should be shipped to markets.

Processing

Inspectors check to make sure that foods (both meat and plant products) are stored at safe temperatures and processed in sanitary ways throughout processing. Proper food handling techniques and preparation instructions are often included on food packages.

Shipping

Both crops and meat products must be shipped at proper temperatures and in a timely manner so the freshest, safest products arrive to end consumers.

Retailers and Wholesalers

Retailers and wholesalers must make sure that food is stored at the proper conditions/temperature while in their possession and is sold or discarded before it expires (is unsafe).



Food Safety Handbook

Creating a plan for food safety is critical for every school garden. By following proper handling procedures, the safety of food harvested from the garden can be ensured. You are to create a food safety handbook for your school garden that outlines safe handling procedures for the harvest of garden produce. The handbook will be used to train garden workers. Copies of the completed handbook will be kept in the school office in case any illness issue arises, and at the garden site as a reference for all workers. Review the chart below and be sure to include all necessary components.

	Points Possible	Grade
Handbook Sections		
Students participating in harvest Address permission slips, identification of allergies, proper footwear, sunscreen, and hats	6	
Health of those harvesting Address symptoms of sicknesses that would prevent workers from harvesting, length of time following sickness before returning, what to do with open cuts	6	
Hand-washing procedures Address length of washing, soap vs. hand sanitizer, when to wash	6	
Produce handling Address washing produce, protecting harvested produce from sun and birds, removing rotten produce	6	
Equipment and containers Address cleaning and sanitizing of tools, cleanliness of containers used to hold produce, designation of containers for food use only	6	
List of sources	3	
Appearance		
Cover page	3	
Well organized	3	
Creative	3	
Use of class time	3	
Total	45	

Suggested Websites and Sources:

Centers for Disease Control and Prevention – Wash Your Hands
<http://www.cdc.gov/features/handwashing/>

National Food Service Management Institute – Food Safety Tips for School Gardens
<http://nfsmi.org/documentlibraryfiles/PDF/20110822025700.pdf>

University of California, Davis – Food Safety Tips for Your Edible Home Garden
<http://ucfoodsafety.ucdavis.edu/files/26392.pdf>

Name _____



Check Your Steps

FoodSafety.gov hosts information from a number of government agencies. Visit their website to find three tips for each of the four simple steps to food safety once food enters the home.

Clean	
Separate	
Cook	
Chill	

www.foodsafety.gov/keep/basics

Name _____



Food Safety

1. List three different places food safety occurs.

2. Describe two key components of the food safety plan you developed for your school garden.

3. List the four simple steps to food safety once food enters the home and describe why they are important.

Step	Importance